

CLAIMS

1. A nonaqueous electrolyte secondary battery comprising:
a nonaqueous electrolyte and a positive electrode that occludes
5 lithium ions reversibly,
wherein the positive electrode includes an active material layer and a
sheet-like collector that supports the active material layer,
the collector contains aluminum and at least one element other than
aluminum, and
10 an average composition that is obtained by averaging a ratio of
elements composing the collector in a direction of thickness of the collector is
equal to a composition of an alloy whose liquidus temperature is 630°C or
lower.
- 15 2. The nonaqueous electrolyte secondary battery according to claim 1,
wherein the collector comprises a layer formed of an alloy of aluminum and
the at least one element.
- 20 3. The nonaqueous electrolyte secondary battery according to claim 1,
wherein the collector comprises a layer containing the at least one element
and aluminum layers disposed on both sides of the layer.
- 25 4. The nonaqueous electrolyte secondary battery according to claim 1,
wherein the collector comprises an aluminum sheet and a plurality of island
regions dispersed in the sheet, and
the island regions contain the at least one element.
- 30 5. The nonaqueous electrolyte secondary battery according to claim 2,
wherein the collector comprises an aluminum layer and layers containing the
at least one element disposed on both sides of the aluminum layer.
- 35 6. The nonaqueous electrolyte secondary battery according to claim 1,
wherein the at least one element is at least one element selected from
magnesium and silicon.
7. The nonaqueous electrolyte secondary battery according to claim 6,
wherein the content of the magnesium is in a range of 5.5 to 96.0 wt.% in the

average composition.

8. The nonaqueous electrolyte secondary battery according to claim 6,
wherein the content of the silicon is in a range of 5.1 to 16.3 wt.% in the
5 average composition.

9. The nonaqueous electrolyte secondary battery according to claim 6,
wherein the total of the contents of aluminum, magnesium, and silicon is at
least 99.5 wt.% in the average composition.

10. The nonaqueous electrolyte secondary battery according to claim 1,
wherein the collector has a surface formed of aluminum.

11. The nonaqueous electrolyte secondary battery according to claim 1,
15 wherein a protective layer is formed on a surface of the collector.

12. The nonaqueous electrolyte secondary battery according to claim 11,
wherein the protective layer is an oxide layer.

20 13. The nonaqueous electrolyte secondary battery according to claim 11,
wherein the protective layer has a liquid-repellent property.

14. The nonaqueous electrolyte secondary battery according to claim 1,
wherein the average composition is equal to a composition of an alloy whose
25 liquidus temperature is between 250°C and 630°C.